ARGUMENT

THE CITED PRIOR ART

Disclosure of Guy: Guy shows a wastewater treatment apparatus having a quiescent zone and an aeration zone, and treatment in the aeration zone is accomplished by continuous aeration of the wastewater through air injection locations in the aeration zone.

Disclosure of Tabata: Tabata discloses a wastewater treatment apparatus where wastewater is fed continuously into a treatment basin. The treatment basis itself contains no quiescent zone. Within that treatment basin, the wastewaters are subject to a treatment cycle consisting of (1) agitation cycle (mechanical mixing) followed by an (2) aeration cycle. The agitation cycle is accomplished by ceasing aeration, and continuously pumping wastewater in the treatment system (during the agitation cycle). Waters are pumped from the top of the system to the bottom of the system, thereby mixing. The aeration cycle is accomplished by continuing the agitation step (pumping) and further injecting air into the pumped stream (col. 4, lines 16-29) continuously during the aeration cycle. When an agitation cycle stops, the aeration cycles starts. The ratio of (agitation cycle length) to (aeration cycle length) suggested is 1:1 up to 5:1 The preferred cycle is agitate for 45 minutes, followed by 15 minutes of aeration. This (agitation/aeration) cycle is repeated four times, after which a settling period may be entered. (col. 4, lines 39-60) and waters drawn off during the settling period. During the aeration step, a DO probe can be used in the treatment chamber to monitor the DO. Monitoring is done in order to control air flow rates to keep the DO levels in the treatment chamber at predetermined level (col. 5, lines 1-17).

Disclosure of Scroggins: Scroggins teaches controlling the flow of oxygen into a variable depth reactor (lacking an internal clarifier zone) by monitoring the DO levels in the

reactor. Scroggins shows cycling the reactor through DO ranges of 2.0mg/ml to 0.0mg/mg (see figure 6). The cycling can be done on the basis of DO or on the basis of timed cycles. When the DO rises to the level of 2.0mg/l, the microprocessor shuts of airflow into the reactor (col. 8, lines 54-60). That is, air is shut off when DO level rises above 2.0mg.l and turned on when DO levels reach 0.0 mg.l (col. 11, lines 16-21; col. 14 lines 4-16).

Argument as to independent claims 1, 11 and 32

Applicants' independent claims 1, 11 and 32 requires that the aeration into the aeration zone cease for a nitrate reduction period, and during said nitrate reduction period, mixing occurs, but only intermittently, where intermittent mixing is accomplished by intermittently flowing gas through the air injection system. As indicated in applicants' disclosure, during the nitrate reduction period, the aeration zone is allowed to become quiescent. During this quiescent period, solid will settle out. Applicants' claim 1 requires intermittent mixing during the nitrate reduction period where the intermittent mixing is accomplished utilizing the existing air injection system for short durations. Tabata does not suggest intermittent mixing. Indeed, Tabata suggests continuous mixing. If the air injection system were utilized for continuous mixing as Tabata teaches, no nitrate reductions would take place as an oxygen starved environment would fail to come about. Similarly, Scroggins fails to teach any mixing during the nitrate reduction period. Hence, the combination is not taught nor suggested by the combination of Tabata and Scroggins.

Argument as to independent claim 20:

Independent claim 20 is a method of reducing using a DO probe to determine when air injection should cease. Claim 20 requires that aeration cease when the DO levels fall below a predetermined value. None of the art cited by the examiner teaches such. Tabata teaches using a DO probe to maintain the DO level at a predetermined value during the aeration cycle (col. 5,

lines 1-15). Scroggins teaches measuring DO levels using the DO probe, and to cease aeration when the DO level rises above a predetermined value (col. 8, lines 54-60). Hence, neither Scroggins nor Tabata teaches controlling the initiation of aeration stoppage when DO falls below a designated value.

CONCLUSION

Applicants have shown that the Examiner failed to meet his burden of presenting a *prima facie* case of obviousness under 35 U.S.C. §103. Applicants, therefore, believe that the application is now in condition for allowance.

Respectfully Submitted,

DATE: 9/25/03

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with The United States Postal Service in an envelope addressed to: **MAIL STOP FEE RESPONSE**, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 25th day of September, 2003.

Tina G. Matty